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An Art Museum

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AN ART MUSEUM

BY

ALFRED EDGERTON MANIERRE

THESIS

FOR THE

DEGREE OF BACHELOR OF SCIENCE

IN

ARCHITECTURE

COLLEGE OF ENGINEERING

UNIVERSITY OF ILLINOIS

1912

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UNIVERSITY OF ILLINOIS

JUNE 1st, 1912.

THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

ALFRED EDGERTON MANIERRE

ENTITLED AN ART MUSEUM

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

DEGREE OF BACHELOR OF SCIENCE IN ARCHITECTURE

David Varon
Instructor in Charge

APPROVED: Frederick M. Mann

HEAD OF DEPARTMENT OF Architecture

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AN ART MUSEUM.

Programme.

In a large city of some 1,500,000 inhabitants it is desired to build a large public Art Museum. A large and beautiful park extending along the shore of a great lake has been selected as the site of the proposed building. The park is formally laid out, with beautiful trees, gardens, and lagoons, and broad avenues lead to the site selected, which is elevated.

The Museum is to be used for the exhibition of paintings, sculpture, and large architectural casts of details of famous buildings.

It is desired that the building be monumental in plan and elevation, dignified in design, and expressive of its purpose. Advantage is to be taken of the beautiful outlook afforded from the site and open colonnades in the building are considered desirable so that visitors may take advantage of the view.

The building is to be one story and basement and is not to exceed 300'--0" in its largest dimension.

The requirements of the plan are;

Main Floor--A monumental vestibule.

A large and imposing hall of casts.

Rooms for paintings.

A lecture hall with entrance vestibule.

Basement----Curator's office, attendants' rooms, storage rooms, and toilets for man and women.

It is considered desirable that a visitor entering may go completely around the Museum and back to the entrance without having to

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retrace his steps.

The heating, ventilating and air washing plant is to be in the basement.

The hall of casts and picture galleries are to be lighted by skylights from above.

The building is to be surrounded by beautiful formal gardens with a pool, flower beds, belvederes for statues, fountains, etc., and the surroundings are in every respect to be made a feature and as attractive as possible to the visitor.

Discussion of the Programme and Solution of the Problem.

In studying the requirements of an Art Museum the lack of uniformity in practice, and the lack of agreement as to what constitutes the best practice in this class of buildings, becomes at once apparent. There are no standard rules, as there are, for example, in the case of libraries. However, certain general points seem to be agreed upon, especially as regards the lighting. This is conceded to be best accomplished by means of top lighting from skylights, and therefore in my solution of the problem, I have used this system of lighting and have provided ample natural light in all parts of the building.

Another point agreed upon is that whenever possible the museum building should occupy an isolated position as a protection from fire. This requirement I have met by placing my museum in a large park, apart from all other buildings.

As a Museum should express the idea of the widest invitation and welcome and its exterior convey the positive assurance that that which is to be seen within shall be of the best that men have imagin-

ed and wrought with their hands, I have endeavored to give this character to my design and have tried to make the exterior such that it will invite the public to enter with the expectation of seeing noble examples of man's achievements in the arts of acchitecture, painting, and sculpture.

It has seemed to me that a certain restraint should be exercised in the building itself and that its lines be comparatively simple so that the general public may easily understand the design and that it may make a ready appeal to the public. Also that the elevation clearly and truthfully express the plan. To this end, I have tried to make the elevations clearly express the plan, simple in general treatment and monumental as befitting the character of the building, giving life and variety to the elevation by its outlines, and, in detail, by means of statues, inscriptions, etc.

As it is considered most desirable to have large and beautiful grounds and surroundings about an Art Museum, as during the pleasant season the charms of a garden will be the prelude and may be the interludes of every museum visit, I have chosen a large and beautiful park as the site and have endeavored to make the surroundings as attractive as possible in order to furnish an imposing and appropriate setting and so enhance the visitor's pleasure.

The plan is designed to be monumental, befitting the character of the building, with imposing entrance vestibule to prepare the visitor for the great hall of casts it opens upon, and ample circulation to all parts of the buklding have been provided, designed so that the visitor entering at the main entrance may pass through the entire museum and back to the entrance again without having to retrace his steps. The large hall of casts provides ample space for

the exhibit of full size models of architectural details of famous buildings and for statuary. The picture galleries are arranged about the hall of casts and all are top lighted. Open colonnades on the exterior of the building have been provided so that an outlook may be had over the surrounding landscape.

As the one story rectangular plan is considered best for museums of art, I have adopted this type of plan in my solution of the problem, as this shape of plan secures the maximum illumination at all seasons. A simple plan is considered very desirable and I have tried to make my plan as simple as possible.

Long narrow rooms opening on corridors are considered to be best for the exhibition of paintings, and I have so designed the rooms in my plan devoted to paintings.

In my solution of the problem I have endeavored to so arrange the rooms for the public that complete supervision may be had with few attendants.

As it is considered desirable to have the curator's and other business offices set apart from the ordinary visitor to a museum, in order to avoid interruption from visitors, to accomplish this I have placed the executive offices in the basement, which has a high ceiling. The employees' rooms, with their coat rooms and toilets, storage rooms, and visitors' toilets, both men's and women's, have also been placed in the basement. Access to them is gained by stairs placed so as to be easily seen, but not so prominent as to invite the public to go to the lower floor in great numbers and so disturb the work that is being done there.

The heating, ventilating and air washing plant naturally come in the basement and I have so provided for them in my design.

I have endeavored to make the building both in plan and elevation monumental, suited to its surroundings, and of such design as to attract the public.

Historical.

Museum--This term means strictly a place of retirement and was originally applied to a part of a palace built by Ptolemy Philadelphus at Alexandria, in Egypt, which part was so denominated in consequence of its being reserved for the muses and the study of sciences. Men of learning were lodged and entertained in it, and divided into companies and colleges according to the sciences of which they were professors: a handsome sum being set aside for each establishment. The buildings were afterwards enlarged by the emperor Claudius.

Museums also existed in ancient Greece, the name signifying in the Greek language the homes of the muses. These early museums of course were not at all like the buildings to which that name was applied later, and as it is used today. But at first they were in the groves of Parnassus and Helicon, and later were temples in various parts of Helles. Soon, however, the meaning of the word changed and it was used as a place of study, or a school. Athenaeus in the second century described Athens as "the Museum of Greece" and the name was applied to that portion of the palace of Alexandria which was set apart for the study of the sciences and which contained the famous Alexandrian library.

The Alexandrian museum was burned in the days of Caesar and Aurelius, and the term museum, as applied to a great public institution, dropped out of use from the fourth to the seventeenth

century. The disappearance of the word is an indication that the idea for which it stood had also fallen into disfavor, and such, indeed, was the fact.

There were, in the remote past, galleries of pictures and sculpture as well as museums, so called. Public collection of paintings and statuary were founded in Greece and Rome at a very early date. There was a gallery of paintings (Pinacotheca) in one of the marble halls of the Propylaeaum at Athens, and in Rome there was a lavish public display of works of art.

The idea of a great national museum of science and art was first worked out by Lord Bacon in his "New Atlantis", a philosophical romance published at the close of the seventeenth century.

The first scientific museum actually founded was that begun in Oxford in 1667 by Elias Ashmole, composed principally of natural history specimens.

Many of the great national museums of Europe had their origin in the private collections of monarchs. France claims the honor of having been the first to change a royal into a national museum, when in 1789, the Louvre came into the possession of a republican government.

In modern times the term museum is applied to a building for the accommodation of objects for the purpose of study, as of art, of science, of archaeology, of natural history, of books and manuscripts (library) of pictures, (picture gallery). Objects of manufacture now often form a museum of themselves, as do other articles when associated together for a specific purpose, as in industrial museums, etc. In short it is a building arranged to contain collections of any kind for public inspection of special study.

The museums of Europe and America are either (1) old buildings intended for a different purpose, or (2) old buildings to which alterations have been made, or(3) buildings erected especially for museums.

Examples: (1) The Museo Nazionale in Florence is the old Bargello, the large halls and open galleries of which are used without alteration, the light being admitted through the ancient windows. The halls of the Pitti Palace are used in exactly the same way. Of similar character were most of the galleries of the Luxembourg until the recent removal of the collections to an outside building, and all the ground floor galleries of the vast Louvre Museum as well as many of them in the upper stories. Where side light is acceptable these arrangements are not necessarily bad; but in these more than in others the supposed necessity of architectural effect interferes with the proper lighting of the objects exposed.

(2) In ancient palaces, halls reserved for museum purposes have had skylights opened and in many cases long galleries have been built, even to the extent of an additional upper story as in the Uffizi at Florence, where what was once an open loggia has been enclosed and has had skylights opened; or, as in the Belvedere Museum, formerly the principal one in Vienna; or, as in the great galleries of the Louvre, where the uppermost story has been partly built for the purpose and partly altered so as to furnish the pictures with top light. The Museo Nazionale at Naples is one of the best instances of this class; here an immense palace-like building, built originally for a university and used at different times for different purposes, was finally established as a museum about 1816, the change of destination involving the building of top-lighted galleries.

The minor or special collections of many European capitals are provided with exhibition rooms; in this way the lower halls of a great palace, as in the Lateran Palace at Rome, in the Doge's Palace at Venice, the Grüne Gewölbe at Dresden, were used, but these, though often called "Museums" or by an equivalent term in the language of the country, are not museums in the sense here given to that term.

(3) The old museum at Berlin was finished in 1828, and remains as useful a building as any of its successors. The Glyptothek at Munich, finished in 1830, is a singularly elaborate structure with a plan involving great variety in the different rooms and halls, and is one of the best museums in Europe. The old Pinakothek of Munich, though not finished till 1836, seems to have been planned before either of the museums above named. In this a very serious attempt was made to combine everything that a museum of art should provide. The London National Gallery was finished in 1838, the British Museum, begun in 1838, was continued at different epochs, and some of the changes have been so great as almost entirely to renew the building, so that the actual date of its present arrangement is hard to fix. The picture gallery of Dresden was built about 1850, the new Pinakothek at Munich was finished in that year, the new new museum at Berlin in 1855, the National Museum at Munich in 1866, the Vienna Museum of Art and Industry was finished in 1871, the Museum of Fine Arts in Boston was begun at about that time, and was finished in its original form about two years later.

In Italy the conversion of a monastery into a museum is a simple process, the Dominican house of San Marco in Florence offering a typical example. A further stimulus to the foundation of museums on the Continent is the comparative ease with which old buildings

are adapted for the collections. Thus the Germanische Museum of Nuremburg is a secularized church and convent; the enormous collections belonging to the town of Ravenna are housed in an old Camaldalensian monastery. The Louvain and Florence Municipal palace of great beauty are used; at Nemes the famous Roman temple; at Urbins the great ducal palace, etc.

The desire to make a financial profit from works of art is a direct cause of the modern museum movement in Italy. One result is to displace and thus depreciate many works of art, beautiful in their original places, but quite insignificant when put into a museum.

Art Museums are far more numerous on the continent of Europe than in England. In Italy public collections are ten times more numerous than in England and are chiefly regarded as financial assets. In Germany progress has been very striking, their educational aspects being closely studied.

Principal Museums of the World.

Principal Museums of the world are;

At Rome; the Vatican, the Capitol, the Laterense.

The museum at Berlin, Turin, Parma, Mantua, Pavia, Milan, Padua.

At Naples, the Studii.

At Florence, the Uffizii.

At Leipzig, the Schlettur collection.

Museum at Munich, at Dresden.

At Paris; the Louvre, the Galliera Museum, Luxemburg Gallery, Cluny Museum-

At St. Petersburg, the Hermitage and New Museum.

At London, the British Museum, the South Kensington Museum,

the National Gallery, the National Gallery of British Arts, or Tate Gallery, the Wallace collection, the National Portrait Gallery.

At Birmingham, the Corporation Art Gallery and Museum.

At Oxford, the Ashmolean and the University Museums.

At Cambridge, the Fitzwilliam Museum.

The Museum at Edinburgh, at Glasgow.

The Museum at Dublin.

The National Museum at Athens.

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Requirements of a Museum.

Sturgis says that "it is noticeable that no special pains have been taken to agree as to the essential character of Art Museums. Such agreement as the librarians of Europe and the United States have sought to reach might have proved of great benefit to the managers and the public. The earliest Museums especially built for that purpose are as good as the latest. Private picture galleries have received no more consistent study than Museums, and the latest built ones are as likely to prove failures as those of half a century ago. It is the experience of those who have had works of art to show in temporary exhibitions, ~~to~~ or those who have had temporary buildings to provide as the commencement of permanent museums, have found that a very plain shed possibly of fire proof material, is easy to arrange; but ~~not~~ that the demands sure to be made upon the managers to allow of great architectural effect in the permanent structure have generally interfered greatly with the proper lighting and showing of objects exposed. It is on this account all the more necessary that a body of rules be accepted as binding upon all builders of Museums. Certain formulae for the section through the room, for the placing and comparative size of windows, or skylights, for the protection of the objects within from the direct glare of the sun or the like, might be adopted and the evidence of these rules, even if not binding on the planners of new museums, might be useful".

A careful investigation of all books of reference on museums in the Architectural and General Libraries of the University of Illinois, and of the Newberry Library of Chicago, fully confirm what Sturgis says. Data is scarce and conflicting.

When the Boston Museum of Fine Arts decided to erect a new museum, they found the same lack of uniformity in museums and in their "Museum of Fine Arts Bulletin" Vol. lV. June, 1907, they say, "it was found that no type of museum building existed that was generally accepted and could be taken as a guide. The older European museums have grown out of princes' collections, and are still housed in palaces, or buildings designed for other purposes, and ill-adapted to museum needs."

This lack of uniformity and the scarcity of data makes it somewhat difficult to arrive at any very definite general conclusions in regard to the planning of museums, but such data as I have been able to obtain from reading various reference Books and from other sources of information and from a careful comparative study of existing museums of the world follows:

Site

An art museum should be placed in a detached or isolated position, this being the most complete defense against fire. Wherever possible it is most desirable to have large and beautiful grounds and surroundings about an art museum as during the pleasant season, the charms of a garden will be the prelude and may be the interludes of every museum visit. Many though the visits may be to such a museum, they would never exhaust the interests.

Requirements of Plan.

The museum building when many storied("many storied" applying more to scientific than to art museums), should be rectangular. This rectangular building should be shortened in one direction and

lengthened in the other in order that the light falling in on either side should not lose its intensity by penetration, but somewhat mingle. A square building is objectionable, if it has no court, because it is not apt to be as well illuminated as a narrow one. Such a building should be placed in this latitude, and generally, North and South, so that morning and afternoon light could enter it. To secure the maximum illumination at all seasons the flat or one-storied museum with skylight, clear story , etc., has been devised. In such buildings extreme height should be avoided.

It is generally admitted that pictures in oil color, especially large ones, should be lighted by top lighting. It is to be observed that in a long and narrow room the arrangement of the side wall with skylight above is the unit and everything must give way to the proper distribution of these parts. It is, therefore, an error to try to hang pictures on the end walls. It is the side walls only that should receive the paintings, for which the gallery is intended, except that the space left at the ends, above doors, etc., may be used to place cabinets or put up screens, as it is found expedient. The practice in the galleries of the Louvre is good in this respect. The architectural disposition should be such that a section through the gallery shows upon the end wall, so that the cove of the cornice at the top of the side wall should not be returned against the end walls, but should abut squarely against them. There is no difficulty in arranging this with the architectural treatment of the gallery.

In museums the plan should be carefully studied and arranged with reference to the character of the objects to which it is to be devoted, so that the general distribution of such objects should assist the purpose of study.

The extent of accomodation for each department decides the number of rooms which are to be provided for the museum, and must considerably influence the design.

The plan should be simple and the rooms should be square or oblong and arranged along corridors. Rooms should open out of each other in such a way that the visitor can go from one end to the other without a break.

Art museums to be complete should have a lecture room in connection.

The following rules apply to libraries and is standard practice in this class of buildings, but may well be applied to art museums also:

No essential convenience of arrangement should be ~~practiced~~ sacrificed for architectural effect.

There should be ample natural light in all parts of the building.

Rooms for the public should be grouped as to insure complete supervision with few attendants.

In the Boston Museum of Fine Arts, one of the newest, there is a basement, the central and darker portions of which are in the main utilized for the heating, ventilating and air moistening apparatus. Rooms are also provided here for storage and toilets.

In the Brooklyn Institute of Arts and Sciences, 1895, each floor has four halls for collections, one 110' x 38', one 42'x 42', and two 16'x 40'.

In the Art Institute of Chicago the Hall for Architectural casts is 240 ft. long and 65 ft. wide. The basement is 12 ft. high and has store rooms, packing rooms, lunch rooms, etc.

In general a museum of fine arts should express the idea of the widest invitation and welcome. Its exterior should convey the positive assurance that that which is to be seen within shall be of the best that men have imagined and have wrought with their hands, For such a conception the architectural style at once suggested, is the classical, freely interpreted, or the Renaissance. Either will make a ready appeal to the rather conservative taste of a community that does not easily accept new departures in architecture, whether in style or details.

Materials of Construction.

The materials used in the construction of a museum is determined by taste, resources, and convenience. Thick walls form a protection against damp. Stone and firebrick are partial safeguards against fire. Thick walls, however, must be provided with a hollow air space, otherwise their thickness is an insuperable obstacle to proper dryness.

Wooden floors are objectionable as they do not admit of a complete cleaning and they accumulate and form dust.

In the Brooklyn Institute of Arts and Sciences, foundation laid in 1895, which is fire proof throughout, the floors are supported by iron beams and thick arches and are covered with terrazza on a cement foundation. The facades are of white sandstone.

The floor of the Metropolitan Museum of Art, New York, is of white marble. The building is built of gray sandstone.

The Art Institute of Chicago is fire proof, being built of Bedford limestone and brick.

The Boston Museum of Fine Arts is of cut granite. Natural stone should be used, and never imitations, such as stucco.

Lighting.

The important question of lighting of works of art which are absolutely fixed, as in the case of mural paintings or carved friezes or panels, or though portable, not likely to be moved on account of their size or their occupying a position intended to be not often changed, is complicated by the considerations of interior effect. If, for instance, a large window be arranged in the wall facing due north, and the walls at right angles with this and running north and south are to be adorned with paintings or other works of art, it will be found that the window may easily be too near the corner of the room and light, therefore received at an angle too acute with the surface of the work of art to be seen. If pictures are framed, as moveable pictures are always, the case is still more serious because every projection of frame or shadow box will throw a shadow upon the surface and this will increase the inevitable bad effect of light showing so steeply upon a painting as to exaggerate the threads of the canvas, if they are partly visible, or the projecting masses of paint common in the works of many artists. In the case of sculpture the effect is still more obvious and though nothing is more disastrous for reliefs than illumination from a point opposite them, but behind the spectator, for, as this tends to efface all light and shade and to make shadow impossible, yet the lighting at too great an angle with the surface causes all minute refinement of surface to be lost in a general darkness of shadow. The same thing arises in the case of artificial lighting.

The proper method of lighting has been discussed at length under the heading of Requirements of Plan above, and so need not be repeated here.

In the Boston Art Museum the rooms are lighted by windows with prismatically ribbed panes, which make it possible to illuminate otherwise somewhat dark wall surfaces in such a manner by daylight, that they are thereby adapted to the hanging of pictures. These prisms are made by the Luxfer Prism Company.

In the picture galleries of the Art Institute of Chicago, instead of tempering the light in the middle of the room with cloth in the usual manner, glass decorated in colors is used, which, however, absorbs much light and directs attention from the exhibits.

Heating and Ventilating.

In the Brooklyn Institute of Arts and Sciences, 1895, the engines for heating, ventilating, lighting and electric power are located in the basement. The steam radiators are placed mostly under the windows or near them. A hot air plant, besides, run by steam engines, heats all the halls through openings about two-thirds above the floors. Ventilation is accomplished by means of an electric ventilator in the roof, but this does not seem free from objections. The problem is seldom well solved in large buildings.

The heating of the Metropolitan Museum of Art, New York, is by steam, the power house being located in a separate building.

The Art Institute of Chicago is steam heated and the apparatus is kept in a small detached building. Natural gas is used for heating. In the building itself, no fire is allowed to be lighted.

The fire service of the Art Institute is interesting and may not be out of place here. The building and the collections are insured by a company which maintains a watch service for all of its large customers. In every room there is an alarm. The watchmen,

who carries a lantern and does not use the electricity which is installed throughout the building, strikes this alarm hourly throughout the night, and thus a direct telegraphic communication is established with the watch room of the insurance company, and the official there knows whether each room has been inspected every hour. If the signal is omitted at any time some one immediately appears at the building from the fire insurance company. Each morning a card showing the night report is sent to the director of the Art Institute.

In the Art Institute for economical reasons , ventilating apparatus was not provided. In the second story, however, panes of the lower skylight can be opened and fresh air admitted through windows above the roof into the empty space between these skylights and the fixed glass roof. On the ground floor, air may be admitted by opening the large plate glass windows, without iron bars, which turn vertically around an axis, a practical arrangement worthy of imitation; by means of which cross-bars and their injurious effects are avoided. It can be easily understood that this kind of ventilation is insufficient when the building is crowded with visitors. The smoky atmosphere of Chicago defaces the casts. This could be avoided by ventilating with purified air and closed windows, as has been done in various buildings in America.

In the Technical School and Museum at Manchester, England, the method of ventilation rests upon the principle that only screened (washed and cleaned) air, permeated with steam and heated ad libitum, is brought into the building ("plenum system"). This building is one of the few in Europe that has introduced this important method, the only proper and necessary one for museums and one that should

be used in all new museum buildings. In this type of building, moreover, all the windows can be opened without any unclean air penetrating from the outside, since the pressure of the air in the interior of the building is always greater than that from without.

The Galliéra Museum, Paris, is heated by hot air from the large basement.

Storage Rooms.

In the Art Institute of Chicago the storage rooms, packing rooms, etc., are located in the basement, which has a 12'-0" ceiling.

Exhibition Cases.

Cases should stand at right angles to wall space between windows, as in this way the best possible effect of lighting is obtained.

It is unsatisfactory to place exhibition cases under high windows. This looks well, but does not appear everywhere to answer the purpose on account of the reflections and deficiency of light.

Exhibition cases should be dust proof.
Cases should be placed away from the walls, near the center of the rooms.

Administration and Administration Rooms.

In the Brooklyn Institute of Arts and Sciences, there is a director and seventeen employees, seven of whom are scientists, and several honorary administrators of individual sections with their subordinates. In this museum the administration rooms are in the basement.

In the Metropolitan Museum of Art the employees number about one hundred, of whom three are scientists.

In the Art Institute of Chicago, there is a director and thirty salaried employees.

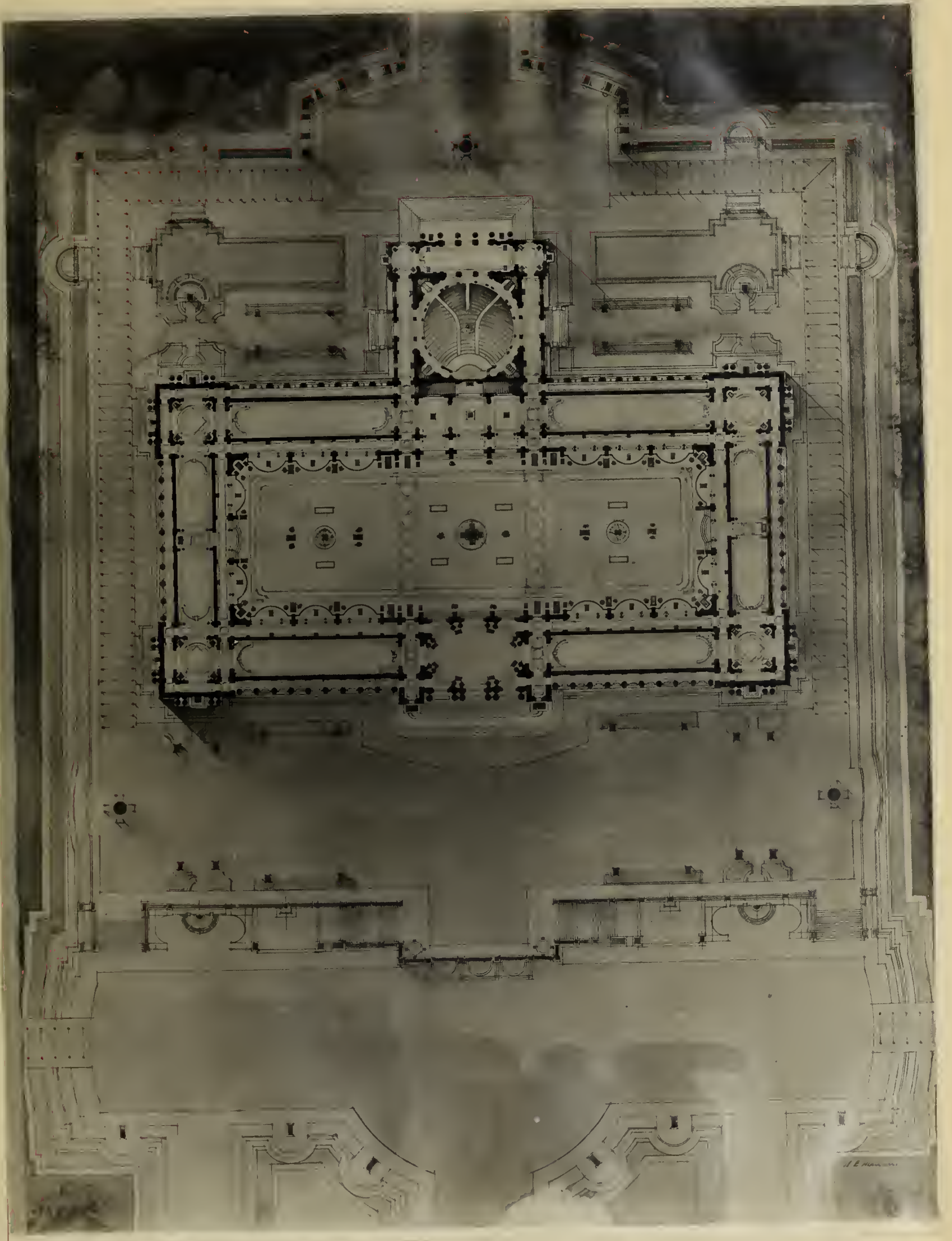
Interior Decoration and Finish.

In the Brooklyn Institute of Arts and Sciences, 1895, the walls and ceilings are white or of a uniform color, the lobbies and staircase light gray. This deserves special mention because the collections of so many museums, at least in Europe, are rather injured than benefited by too much decoration, or by the style of the decoration of the galleries.

The basement of this museum, which contains the administration offices, has walls of light green, the ceiling white, and the floor of dark cement.

In the great hall on the first floor, devoted to sculpture, the white casts are tastefully mounted on dark green pedestals against a light olive-green background. The ceiling is white, the window frames are a very light ochre; and the floor is gray mosaic. Comfortable benches invite the visitor to prolong his stay.

In the picture galleries, which are furnished with comfortable benches, the walls are light Pompeian red, the ceiling white.



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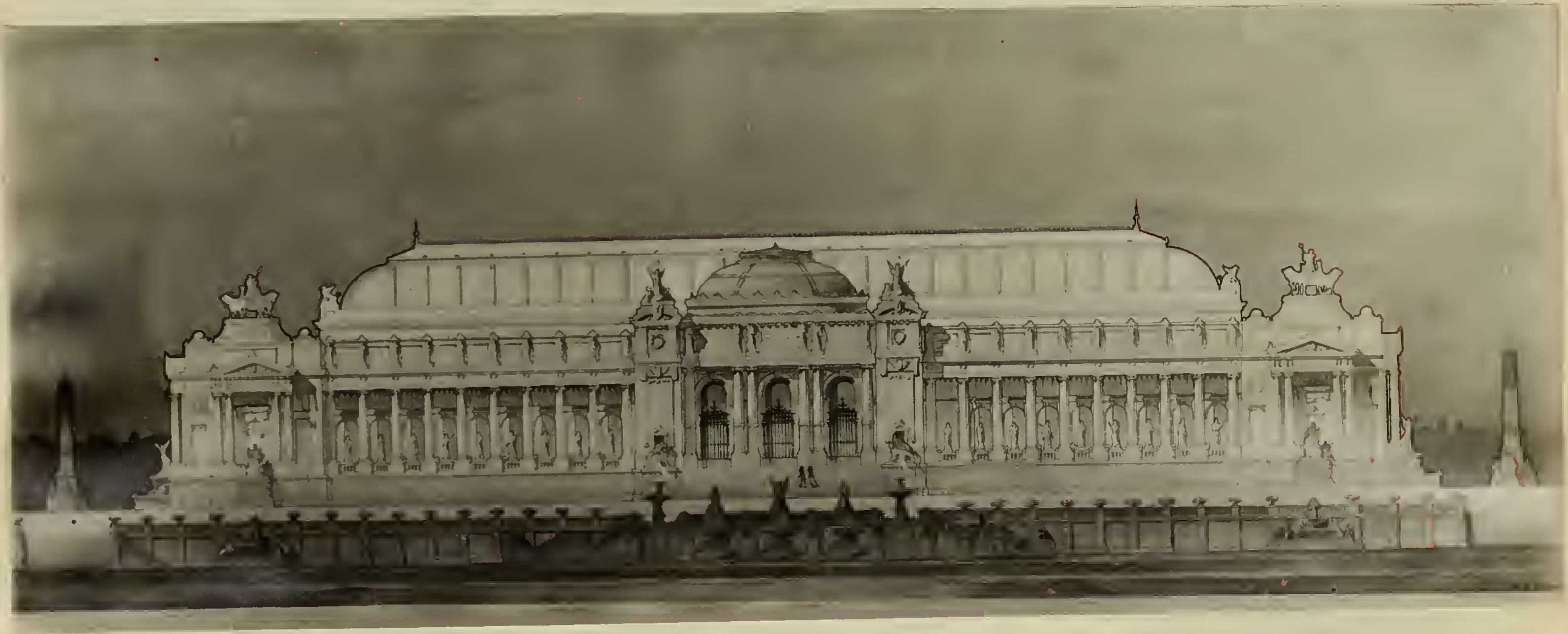

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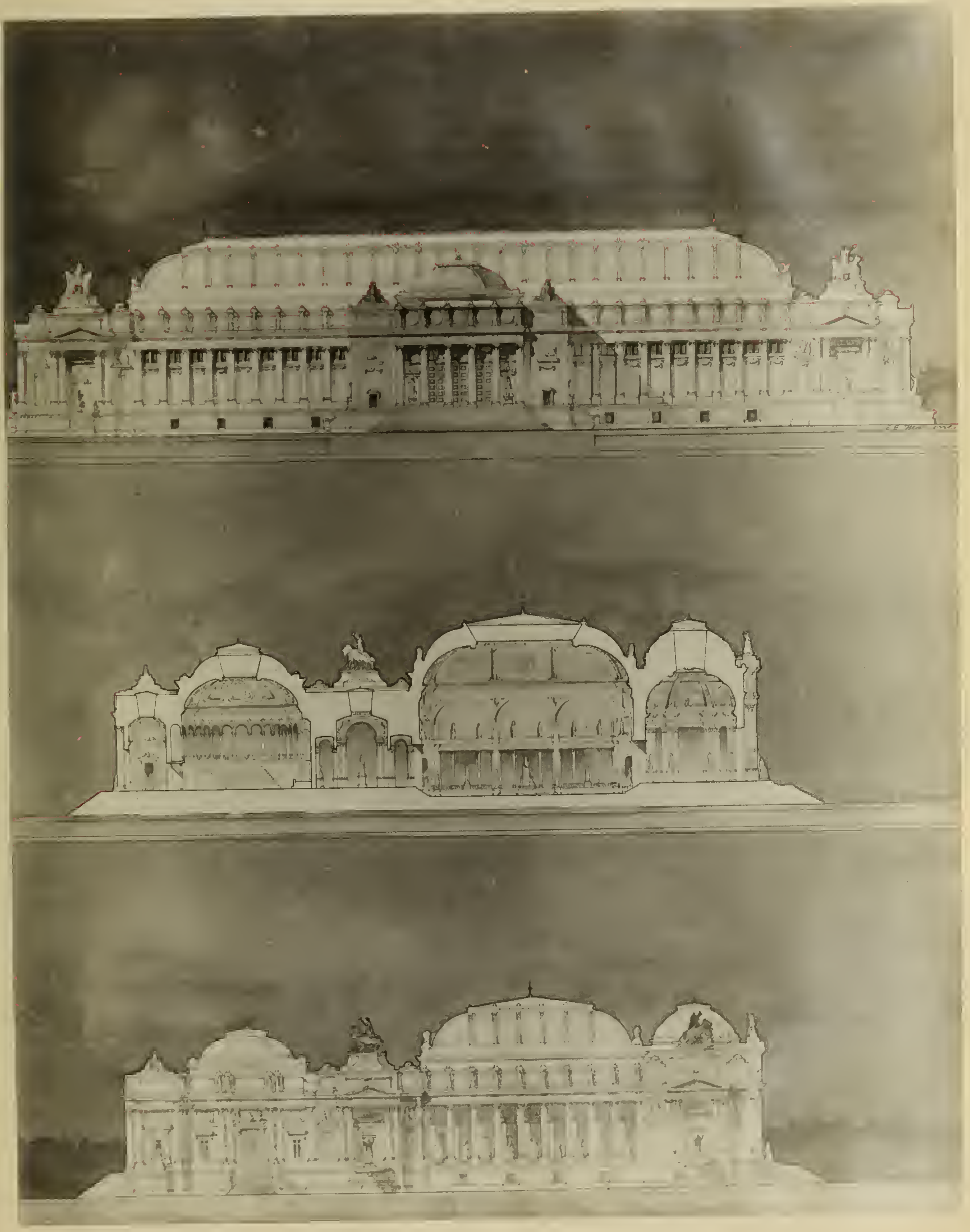

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